

CORRELATIONS OF TOMS TOTAL OZONE DATA (NIMBUS-7 SATELLITE)
WITH TROPOPAUSE HEIGHT

Marie-Jeanne Munteanu
NASA/Goddard Space Flight Center

Two correlation studies of TOMS data with tropopause height from radiosondes performed over Europe for April 15-25, 1979, showed a correlation coefficient of 0.94 and 0.96 (different latitude bands). As a result, the rms error in the prediction of tropopause height from total ozone was found to be 20 mb.

Correlation between tropopause height and TOMS data was the highest of all the other correlations with variables directly derived from radiosondes or simulated thermal radiances over the location of radiosondes.

Comparing the two dimensional fields of TOMS, tropopause height from radiosondes and tropopause height field from TIROS-N retrievals, we can say that the first field is much closer to the true field from radiosondes than the third.

The correlation coefficient for a 10-day study, February 9-18, 1984, (related to VAS project) between TOMS data and tropopause height from radiosondes is between 0.85 and 0.9 for 30-70N.

Tropopause analysis provided by GLA model shows also a very high correlation with TOMS data. This study is performed over Europe for reasons of collocation in time between TOMS data and radiosonde reports.